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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/602,298 | 06/24/2003 | Bernd Witzigmann | 2879P | 1201 |
| 41170 | 7590 | 06/02/2005 | EXAMINER | |
| EMCORE CORPORATION 1600 EUBANK BLVD, S.E. ALBUQUERQUE, NM 87123 | | | NGUYEN, PHILLIP | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2828 | |

DATE MAILED: 06/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/602,298

Applicant(s)

WITZIGMANN ET AL.

Examiner

Phillip Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-23 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 6-8, and 10-23 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Wu ('364).

With respect to claim 1, Wu discloses in Figures 2-4D a semiconductor chip 110 comprising a ridge structure disposed between channels formed on a junction surface of the laser chip; and a plurality of pads 226 only on non-active areas of the junction surface, wherein the pads protrude beyond an edge of the ridge structure. It is noted that the active area is 210 and pads are disposed on the insulation layer 222 which is non-active area.

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With respect to claim 2, Wu discloses a substrate 212 and a mounting surface (could be any surface of the laser 110 such as the lower surface of the substrate where the power source is mounted to the laser or the surface of the pads where the electrode 224 is mounted on).

With respect to claim 6, Wu shows the ridge structure protrudes beyond an edge of the junction surface.

With respect to claim 7, Wu discloses in Fig. 3D a plurality of contacts in the active area 210 such as layers 212 or 214 which are disconnected from the pads.

With respect to claim 8, Wu discloses the pad 226 is bonding pad which includes gold or gold alloy (col. 5, lines 14-16).

With respect to claim 10, Wu discloses the laser preferred bandwidth of 0.5-5 nm which is equivalent to the frequencies approximately equal to 1GHz or larger (col. 3, lines 40-42).

With respect to claim 11, Wu discloses a current source modulated in time (as shown in Fig. 2).

Claims 12-22 further recites a method for “providing” a semiconductor chip. Since Wu disclose the product, it is inherent product by process for performing a method as recited in the claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 3-5 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al. ('364) in view of Miyazaki ('379). With respect to claims 3-4, Wu discloses the claimed invention except for a manufacturing tool abutting the pad without abutting the ridge shape structure. Miyazaki discloses in Figures 1-2 and 7-10 an optical chip that comprising ridge shape structure having a plurality of pads 18 only on non-active areas of the junction surface wherein any manufacturing tool except being a laser chip. For the improvement, it would have been obvious to the one having ordinary skill in the art at the time the invention was made to provide a laser chip that has a plurality of pads on the non-active area as taught by Wu to keep manufacturing tool from abutting the ridge structure of the laser chip as taught by Miyazaki (col. 6, lines 20-21).

4. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Cai et al. ('254) in view of Wu ('364). Cai discloses the claimed invention as shown in Fig. 3 (and the previous Office Action) with plurality of pads comprising non-metal material (paragraph 0031) except for channels formed on a junction surface of the laser chip. Wu discloses the claimed invention as shown in the rejection of claim 1 except for the plurality of pads comprising non-metal material. For the improvement of the laser chip, it would have been obvious to the one having ordinary skill in the art at the time the invention was made to provide the channels 316, 318 as taught by Wu in order to build the ridge structure.

Conclusion

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Citation of Pertinent References

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The patent to Miyazaki discloses OPTICAL DEVICE AND ITS MANUFACTURING METHOD, U.S. Patent No. 6574379

The patent to Wu discloses Back Facet Flared Ridge For Pump Laser, U.S. Patent No. 6375364

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The Patent Application Publication to Cai et al. discloses SEMICONDUCTOR DEVICES WITH IMPROVED HEAT DISSIPATION AND METHOD OFR FABRICATING SAME, U.S. PG Pub No. 20040026779

The Patent Application Publication to Haneda et al. discloses Semiconductor Optical Device, U.S. PG Pub No. 20030210721

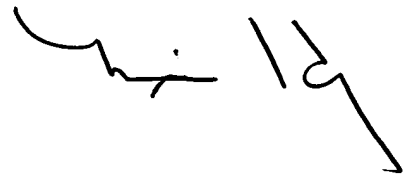
Communication Information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phillip Nguyen whose telephone number is 571-272-1947. The examiner can normally be reached on 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MINSUN HARVEY, can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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MINSUN CH HARVEY
PRIMARY EXAMINER